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INFORMATION CIRCULAR

DEPARTMENT OF COMMERCE - BUREAU OF MINES

SPECIALLY RECOMMENDED TRAILING CABLE¹
(Advance Notice)

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The Bureau of Mines has collected field data and made laboratory investigations³ of trailing-cable performance in the hope of developing a better and safer cable for use with permissible mining machines.

Because of their better insulation and performance, only rubber-sheathed cables were finally considered. The cables tested represented the product of six manufacturers:

After consideration of the results of the preliminary investigations, the conditions under which cables are used in mines, and the better performance of the later types of cables that were submitted as the investigation progressed, the bureau formulated a performance-test requirement and notified the cable manufacturers as follows:

The hazards of the trailing cable are such that the bureau has been unable to extend beyond the machine its formal approval to cover the cable as at present developed. However, in the attempt to reduce the hazard as much as possible, cables passing certain tests will be recommended for this service and it is hoped that several cables will be developed to meet this requirement.

The test requirement as stated in Schedule 2C follows:⁴

Trailing cable performance:- the following performance test optional with the manufacturer is established for determining the suitability of trailing cables for use on permissible equipment. Trailing cables that pass this test will be especially recommended for this service.

- 1 The Bureau of Mines will welcome reprinting of this paper, provided the following footnote acknowledgment is used: "Reprinted from U. S. Bureau of Mines Information Circular 6375."
- 2 Electrical engineer, U. S. Bureau of Mines, Pittsburgh Experiment Station, Pittsburgh, Pa.
- 3 Ilsley, L. C., and Hooker, A. B., A Preliminary Investigation of Rubber-Sheathed Concentric-Type Trailing Cables for Mining Machines: Bureau of Mines Rept. of Investigations 2909, 1929, 10 pp.; and A Preliminary Investigation of Rubber-Sheathed Parallel Duplex-Type Cables for Mining Machines: Bureau of Mines Rept. of Investigations 2961, 1929, 9 pp.
- 4 Schedule 2C - Explosion-Proof Mine Equipment; Requirements for Approval of Storage Battery Locomotives and Power Trucks, Junction Boxes, and Electric Motor Driven Equipment; February, 1930; 27 pp.

The cable will be placed across the two rails of a track and a 4-wheeled 7-ton car will be run over it fifty times. The speed of the car shall be approximately $3\frac{1}{2}$ miles per hour and potential shall be applied to the cable during tests. The cable will be shifted in position after each passage of the car, thus giving 100 places over which two wheels have passed. To warrant special recommendation of the bureau, a cable must neither become short-circuited nor grounded either to the rails or wheels at more than 10 per cent of the 100 places.

A No. 2 parallel duplex "Hazacord" cable manufactured by the Hazard Insulated Wire Works, Wilkes-Barre, Pa., has met the foregoing requirement of Schedule 2C, and will be included in the next semiannual list of permissible equipment as "No. BM-1 cable especially recommended for use with permissible mining machines."

The bureau makes this advance notice in the hope of preventing loss of life in some possible disaster that manufacturers and operators can avoid by availing themselves of the safer cable which is now obtainable and is specially recommended.

It is hoped that each of the trailing cable manufacturers will soon have one or more cables listed and that there will be a complete set of cable sizes available for this service.